Item 8. Training

A. CAMs.

1. Users. Users are considered to be any active duty military, reserve military, civilian, or civilian contractor employed by the Marine Corps who will use, maintain, or store devices containing radioactive sources in the performance of their regularly assigned duties.

2. User Training.

a. As a minimum, CAM users shall receive radiation safety awareness training. Users are trained in the use of CAMs in accordance with guidance provided in published technical Manuals (TM's).

b. The following specific information related to the hazards associated with CAMs and the necessary precautions that must be taken is provided to CAM users in order for them to possess, use, and store the associated Ni-63 sources:

(1) The radioactive source is totally enclosed and protected by the CAM case and poses no hazard when intact.

(2) Handle the CAM carefully.

(3) DO NOT attempt to open the CAM case.

(4) If a CAM is damaged, inform the NBC NCO or officer, and if available, the Radiation Safety Officer (RSO).

(5) A damaged CAM should be placed into two individually sealed plastic bags. For disposition instructions contact:

Commander, Attn: Code 577-3
Marine Corps Logistics Bases
814 Radford Blvd
Albany, GA 31704-1128

(6) If skin should contact any area suspected of being contaminated with Ni-63, wash immediately with non-abrasive soap and water.

(7) Follow safety procedures for storage, shipment, and disposal in accordance with this manual and applicable regulations.

c. Additionally, CAM users shall receive specific training in the following areas: The radioactive material found in CAM drift tubes is a source of beta radiation; responsibilities during transport, storage, and for security of radioactive materials, and those required by NRC Form 3, Notice to Employees; requirements for performing annual leak test wipe samples.

d. User training may consist of a signed briefing statement that outlines each safety element provided in paragraph A.2.b. above how to accomplish each element.

e. CAM users are authorized to possess, operate, conduct preventive maintenance, perform operational checks, and conduct leak tests on CAMs only after successful completion of specified training elements.

NOTE: **REMOVAL OF THE CAM DRIFT TUBE MODULE AT THE USER LEVEL FOR ANY REASON IS STRICTLY PROHIBITED. CAM INTERNAL MAINTENANCE PROCEDURES SHALL ONLY BE PERFORMED AT MCLB ALBANY OR MCLB BARSTOW BY QUALIFIED PERSONNEL.**

f. Successful completion of NBC Officer (MOS 5711), NBC Specialist (MOS 5702), or Radiation Protection Assistant (RPA) initial and refresher training fully satisfies the initial and refresher training requirements for CAM Users. If the MOS 5711, MOS 5702, and RPA trained personnel do not attend RPA annual refresher training, they must participate in CAM User annual refresher training as required by paragraph A.8.d.

g. CAM users shall be provided refresher training annually. As a minimum, this training shall duplicate that which is provided to users during initial training.

h. Installations and commands authorized to possess CAMs shall have an appointed NBC Officer/Specialist or Radiation Safety Officer (RSO). This NBC Officer/Specialist or Radiation Safety Officer (RSO) is responsible for ensuring that training is conducted for all CAM users; the training provided meets the requirements of MCO 5104.3A and this NRMP; and that training records are maintained for inspection by the LRSO for a minimum of three years.

3. Intermediate Level Maintenance Personnel. Intermediate level maintenance is not authorized for CAMs in the Marine Corps. Intermediate level maintenance personnel who are required to handle CAMs shall be trained as users in accordance with paragraph A.2. above.

NOTE: **REMOVAL OF THE CAM DRIFT TUBE MODULE AT THE INTERMEDIATE MAINTENANCE LEVEL FOR ANY REASON IS STRICTLY PROHIBITED. CAM INTERNAL MAINTENANCE PROCEDURES SHALL ONLY BE PERFORMED AT MCLB ALBANY OR MCLB BARSTOW BY QUALIFIED PERSONNEL.**

4. Depot Level Maintenance Personnel.

a. Depot level maintenance personnel who repair CAMs have access to and are trained in accordance with appropriate published Technical Manual's. Depot level maintenance personnel are provided with specific information related to authorized CAM maintenance procedures, the hazards associated with CAMs, and specific precautions that must be taken in order to possess, use, repair, and store the associated Ni-63 sources.

b. Prior to being authorized to perform internal CAM maintenance procedures, depot level maintenance personnel shall receive training from authorized manufacturer representatives that provides specific instructions on how to conduct internal maintenance procedures. Course completion certificates, or other official documents citing successful course completion, shall be maintained indefinitely by the LRSO for each person designated to perform internal maintenance procedures.

c. Depot level maintenance personnel shall receive the minimum radiation safety training prior to working on CAMs. Initial radiation safety training for depot level maintenance personnel shall include an appropriate comprehensive examination to test employee knowledge of applicable subject areas. Minimum passing score is 80%.

d. Depot level maintenance training shall include discussion of the following topics:

(1) Principles and practices of radiation protection.

(2) Structure of matter and radioactivity.

(3) Radiation Units.

(4) Hazards specific to Ni-63, including absorption, ingestion, and inhalation of radioactive material.

(5) Shielding concepts.

(6) Biological effects of radiation exposure.

(7) Radiation detection and instrumentation.

(8) Radioactivity measurement standardization and monitoring techniques.

(9) Mathematics and calculations basic to the measurement of radioactivity.

(10) Safe working techniques and proper use of personal protective equipment.

(11) Wipe testing procedures.

(12) Accountability requirements and procedures.

(13) Applicable NRC, Department of Transportation (DOT), Navy, and Marine Corps regulations.

(14) Emergency procedures, reporting chain, and specific reporting requirements for incidents involving CAMs.

e. Depot level maintenance personnel shall be provided refresher training annually. As a minimum this training shall provide a summary of the required topics listed in paragraph 8.d(4) above, including regulatory and procedural updates.

f. Initial and refresher training for depot level maintenance personnel shall be provided by the appointed IRSO/CRSO. The IRSO/CRSO shall ensure that training is conducted for depot level CAM maintenance personnel; the training provided meets the requirements of MCO 5104.3A and this NRMP; and that training records are retained as follows:

Maintenance Procedure Training	Indefinitely
Initial Radiation Safety Training	3 years
Refresher Radiation Safety Training	3 years

5. LRSO and ALRSO Training.

a. Commander, Marine Corps Logistics Bases shall appoint a designated LRSO and ALRSO.

b. Appointments shall be made in writing.

c. The appointed individuals shall successfully complete the Radiation Safety Officer Course offered by NAVSEADET RASO, Yorktown, Virginia (VA). In accordance with the Radiological Affairs Support Program Manual (RAD-010), prospective appointees shall successfully complete the initial qualification training **prior** to assuming RSO or ARSO duties.

d. LRSO/ALRSO appointment letters and records of successful completion of the required RSO training may comprise of a certificate an official memorandum. Appointment letters and course completion records shall be maintained in program files indefinitely, and shall be made available for review by NAVSEADET RASO.

6. Command Radiation Safety Officer (CRSO) and Alternate Command Radiation Safety Officer (ACRSO) Training.

a. Each Marine Corps major subordinate command (Group, Wing, and Division) shall appoint a designated CRSO. Appointment of the ACRSO is at the discretion of the Commander and based upon the needs of the command, unless the Command provides direct oversight for another specific NRMP or other Radiological Affairs Support Program (RASP) related program for which the AIRSO appointment then becomes mandatory per RAD-010.

b. Appointments shall be made in writing.

c. Appointees shall successfully complete the Radiation Safety Officer Course offered by NAVSEADET RASO, Yorktown, VA. In accordance with RAD-010, prospective appointees shall successfully complete the initial qualification training **prior** to assuming CRSO or ACRSO duties.

d. CRSO/ACRSO appointment letters and records of successful completion of the required RSO training may comprise of a certificate or official memorandum. Appointment letters and course completion records shall be maintained in local program files indefinitely, and shall be made available for review by NAVSEADET RASO.

7. Installation Radiation Safety Officer (IRSO) and Alternate Installation Radiation Safety Officer (AIRSO).

a. Each Marine Corps installation shall appoint a designated IRSO and AIRSO. Appointment of the AIRSO is at the discretion of the Commander unless the Installation provides direct oversight for another specific NRMP or other RASP related program for which the AIRSO appointment then becomes mandatory per RAD-010.

b. Appointments shall be made in writing.

c. Appointees shall successfully complete the Radiation Safety Officer Course offered by NAVSEADET RASO, Yorktown, VA. In accordance with RAD-010, prospective appointees shall successfully complete the initial qualification training **prior** to assuming IRSO or AIRSO duties.

d. IRSO/AIRSO appointment letters and records of successful completion of the required RSO training may comprise of a certificate or official memorandum. Appointment letters and course completion records shall be maintained in local program files indefinitely, and shall be made available for review by NAVSEADET RASO.

8. Radiation Protection Assistant (RPA).

a. Each designated RPA shall receive initial training.

b. In accordance with MCO 5104.3A, this training shall include:

(1) The types, amounts, and locations of the equipment used in the unit that contains RAM, and identification of the radioactive components of this equipment.

(2) The types of radiation emitted by these sources and the safety precautions associated with these equipment items.

(3) The restrictions on Marine Corps use under applicable NRMPs.

(4) Program requirements at the RPA level including control, inventory, surveys, transfer, and handling of the specific equipment items at the unit level including specific training on performing and documenting required leak tests.

(5) Applicable DOT and NRC regulations for hazards communication, packaging, marking, and transporting radioactive components on Marine Corps installations, public roads and highways, and in commerce.

(6) Emergency procedures, reporting chain, and reporting requirements for incidents involving the specific radioactive commodities possessed by the command.

c. RPA initial training shall be provided by the appointing IRSO/CRSO and shall include an appropriate comprehensive examination to test RPA knowledge of applicable subject areas. Minimum passing score is 80%.

d. Successful completion of NBC Officer (MOS 5711) or NBC Specialist (MOS 5702) training fully satisfies the initial training requirement for assignment as a RPA. MOS 5711 and 5702 trained personnel must participate in annual refresher training as required by paragraph A.8.e. below to maintain their RPA qualification.

e. RPAs shall be provided refresher training annually. As a minimum, this training shall provide a summary of the required topics listed in paragraph A.2.b. above, including regulatory and procedural updates.

f. Initial and refresher training for RPAs shall be provided by the appointed IRSO/CRSO. The IRSO/CRSO shall ensure that training is conducted for all designated RPAs; the training provided meets the requirements of MCO 5104.3A and this NRMP; and that training records are maintained for inspection by the LRSO for a minimum of 3 years.

B. ACADAs.

1. Users. Users are considered to be any active duty military, reserve military, civilian, or civilian contractor employed by the Marine Corps who will use, maintain, or store devices containing radioactive sources in the performance of their regularly assigned duties.

2. User Training.

a. As a minimum, ACADA users shall receive radiation safety awareness training. Users are trained in the use of ACADAs in accordance with guidance provided in published TMs.

b. WARNING and CAUTION statements are located throughout the TM text prior to operating procedures, practices, or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). Users are required to review and understand the WARNING and CAUTION statements prior to starting any task.

c. The following specific information related to the hazards associated with ACADAs, and the necessary precaution that must be taken in order to possess, use, and store the associated Ni-63 sources, is provided to ACADA users as follows:

(1) This item contains radioactive material.

(2) Control of this radioactive material is mandated by federal law.

(3) Immediately report any suspected lost or damaged items to the RPO.

Note: RPO is the Army title designating responsible persons within the Army radiation safely program. The Marine Corps designator is RSO and can be substituted throughout the TM.

(4) The sensor assembly inside the M88 detector contains the radioactive material in the form of two Ni-63 sources. Do not attempt to open the M88 detector or gain access to the radioactive source.

(5) Follow safety procedures for storage, shipment, and disposal in accordance with this manual and applicable regulations.

d. Additionally, ACADA users shall receive training in the following areas:

(1) The radioactive material found in ACADA detector cell modules is a source of beta radiation.

(2) Individual responsibilities during transport of radioactive materials.

(3) Proper storage and security of radioactive materials.

(4) Duties required by NRC Form 3, Notice to Employees.

(5) Actions to take if a Marine Corps ACADA is damaged:

(a) Proper packaging and marking of a damaged device.

(b) If skin should contact any area suspected of being contaminated with Ni-63, wash immediately with non-abrasive soap and water.

(6) Emergency notification information, i.e., NBC NCO or officer and the cognizant RSO.

(7) POC for obtaining disposition instructions when required.

Commander, Attn: Code 836-3
Marine Corps Logistics Bases
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Albany, GA 31704-1128

e. User training may consist of a signed briefing statement that outlines each safety element provided in paragraph B.2.d. above, and should include specific guidance on how to accomplish each element.

f. ACADA users are authorized to possess, operate, conduct preventive maintenance, and perform operational checks on ACADAs only after successful completion of specified training elements.

NOTE: REMOVAL OF THE ACADA DETECTOR CELL MODULE AT THE USER LEVEL FOR ANY REASON IS STRICTLY PROHIBITED. ACADA INTERNAL MAINTENANCE PROCEDURES SHALL ONLY BE PERFORMED AT MCLB ALBANY OR MCLB BARSTOW BY QUALIFIED PERSONNEL.

g. Successful completion of NBC Officer (MOS 5711), NBC Specialist (MOS 5702), or RPA initial and refresher training fully satisfies the natal and refresher training requirements for ACADA Users. If the MOS 5711, MOS 5702, and RPA trained personnel do not attend RPA annual refresher training, they must participate in ACADA User annual fresher training as required by paragraph B.7.e. below to maintain their User qualification.

h. ACADA users shall be provided refresher training annually. As a minimum, this training shall duplicate that which is provided to users during initial training.

i. Installations and command authorized to possess ACADAs shall have an appointed NBC Officer/Specialist or RSO. This NBC Officer/Specialist or RSO is responsible for ensuring that training is conducted for all ACADA users; the training provided meets the requirements of MCO 5104.3 and this NRMP; and that training records are maintained for inspection by the LRSO for a minimum of three years.

3. Depot and Intermediate Level Maintenance Personnel.

NOTE: REMOVAL OF THE ACADA DETECTOR CELL MODULE AT THE DEPOT OR INTERMEDIATE MAINTENANCE LEVEL FOR ANY REASON IS STRICTLY PROHIBITED. ACADA INTERNAL MAINTENANCE PROCEDURES SHALL ONLY BE PERFORMED UNDER THE MANUFACTURER'S WARRANTY.

4. LRSO and ALRSO Training.

a. Commander, Marine Corps Logistics Bases shall appoint a designated LRSO and ALRSO.

b. Appointments shall be made in writing.

c. The appointed individuals shall successfully complete the Radiation Safety Officer Course offered by NAVSEADET RASO, Yorktown, VA.

d. LRSO/ALRSO appointment letters and records of successful completion of the required RSO training may comprise of a certificate or an official memorandum. Appointment letters and course completion records shall be maintained in program files indefinitely, and shall be made available for review by NAVSEADET RASO.

5. Command Radiation Safety Officer (CRSO) and Alternate Command Radiation Safety Officer (ACRSO) Training.

a. Each Marine Corps major subordinate command (Group, Wing and Division) shall appoint a designated CRSO. Appointment of the ACRSO is at the discretion of the Commander and based upon the needs of the command, unless the Command provides direct oversight for another specific NRMP or other RASP related program for which the ACRSO appointment then becomes mandatory per RAD-010.

b. Appointments shall be made in writing.

c. Appointees shall successfully complete the Radiation Safety Officer Course offered by NAVSEADET RASO, Yorktown, VA. IAW RAD-010, prospective appointees shall successfully complete the initial qualification training **prior** to assuming CRSO or ACRSO duties.

d. DRSO/ACRSO appointment letters and records of successful completion of the required RSO training may comprise of a certificate or official memorandum. Appointment letters and course completion records shall be maintained in local program files indefinitely, and shall be made available for review by NAVSEADET RASO.

6. Installation Radiation Safety Officer (IRSO) and Alternate Installation Radiation Safety Officer (AIRSO).

a. Each Marine Corps installation shall appoint a designated IRSO and AIRSO. Appointment of the AIRSO is at the discretion of the Commander unless the Installation provides direct oversight for another specific NRMP or other RASP related program for which the AIRSO appointment then becomes mandatory per RAD-010.

b. Appointments shall be made in writing.

c. Appointees shall successfully complete the Radiation Safety Officer Course offered by NAVSEADET RASO, Yorktown, VA. IAW RAD-010, prospective appointees shall successfully complete the initial qualification training **prior** to assuming IRSO or AIRSO duties.

d. IRSO/AIRSO appointment letters and records of successful completion of the required RSO training may comprise of a certificate or official memorandum. Appointment letters and course completion

records shall be maintained in local program files indefinitely, and shall be made available for review by NAVSEADET RASO.

7. Radiation Protection Assistant (RPA)

a. Each designated RPA shall receive a minimum of 8 hours of initial training.

b. IAW MCO 5104.3A, this training shall include:

(1) The types, amounts, and locations of the equipment used in the unit that contain RAM, and identification of the radioactive components in the equipment.

(2) The types of radiation emitted by theses sources and the safety precautions associated with these equipment items.

(3) The restrictions on Marine Corps use under applicable NRMPs.

(4) Program requirements at the RPA level include control, inventory, surveys, transfer, and handling of the specific equipment items at the unit level, including specific training on performing and documenting required leak tests.

(5) Applicable DOT regulations for hazards communication, packaging, marking, and transporting radioactive components on Marine Corps installations and in commerce.

(6) Emergency procedures, the reporting chain, and reporting requirements for incidents involving the specific radioactive commodities possessed by the command.

c. RPA initial training shall be provided by the appointing IRSO/CRSO and shall include an appropriate comprehensive examination to test RPA knowledge of applicable subject areas. Minimum passing score is 80%.

d. Successful completions of NBC Officer (MOS 5711) or NBC Specialist (MOS 5702) training fully satisfy the initial training requirement for assignment as a RPA. MOS 5711 and 5702 trained personnel must participate in annual refresher training as required by paragraph 7e below to maintain their RPA qualification.

e. RPAs shall be provided refresher training annually. As a minimum, this training shall provide a summary of the required topics listed in paragraph B.7.b. above, including regulatory and procedural updates.

f. Initial and refresher training for RPAs shall be provided by the appointed IRSO/CRSO. The IRSO/CRSO shall ensure that training is conducted for all designated RPAs; the training provided meets the requirements of MCO 5104.3A and this NRMP; and that training records are maintained for inspection by the LRSO for a minimum of 3 years.